

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of delivering cardioplegia solution to the coronary arteries even in the presence of aortic valve incompetence, comprising the steps of:
puncturing the ascending aorta at a puncture position between a cross-clamp above the coronary arteries and the left ventricle using a coaxial needle inserted through a lumen of a cardioplegia cannula;
removing the coaxial needle from the cardioplegia cannula;
inserting the cardioplegia cannula into the ascending aorta at the puncture position, the cannula including at least one lumen for cardioplegia delivery and for accepting a folded non-porous membrane that is adapted to cover the aortic valve when opened;
inserting a folded membrane into the at least one lumen and advancing the folded membrane until the membrane is within the ascending aorta just above the aortic valve;
opening the membrane upon emergence from a distal end of the lumen and advancing the opened membrane until it covers the aortic valve at a deployment position below the coronary arteries; and
inserting the cardioplegia solution into the first lumen, whereby the membrane prevents the cardioplegia solution from entering the left ventricle through the aortic valve and the membrane traps the cardioplegia solution above the membrane and below the cross-clamp so as to force the cardioplegia solution down the coronary arteries.
2. (Canceled)
3. (Currently Amended) A cardioplegia cannula for delivering cardioplegia solution to the coronary arteries even in the presence of aortic valve incompetence, comprising:
an elongated tube comprising at least one lumen adapted to accept a coaxial needle for puncturing the ascending aorta at a puncture position between a cross-clamp above the coronary arteries and the left ventricle, and said at least one lumen being adapted for cardioplegia delivery;
and

a foldable non-porous membrane that is adapted to advance through said at least one lumen, through the puncture site and into said ascending aorta, said membrane adapted to open upon emergence from a distal end of the lumen and to cover the aortic valve at a deployment position below the coronary arteries when opened whereby, when deployed, the membrane prevents the cardioplegia solution from entering the left ventricle through the aortic valve when the cardioplegia solution is inserted into the ascending aorta via the at least one lumen and the membrane traps the cardioplegia solution above the membrane and below the cross-clamp so as to force the cardioplegia solution down the coronary arteries.

4. (Previously Presented) A cardioplegia cannula as in claim 3, wherein the membrane is an umbrella that is opened using a wire that is inserted into the at least one lumen.

5. (Original) A cardioplegia cannula as in claim 4, wherein the umbrella and the wire are made of nitinol.

6. (Currently Amended) A cardioplegia cannula as in claim 3, wherein the membrane is a nitinol ring that may be compressed for insertion into the at least one lumen and that is adapted to spring open when it emerges from ~~[[a]]~~ distal end of the lumen elongated tube.

7. (Canceled)

8. (New) A method as in claim 1, wherein the membrane is an umbrella and said opening step comprises opening the membrane using a wire that is inserted into the at least one lumen.

9. (New) A method as in claim 1, wherein the membrane is a nitinol ring that is compressed for insertion into the at least one lumen and said opening step comprises pushing the membrane through the lumen until it springs open when it emerges from the distal end of the lumen.